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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,088	10/04/2005	Jong-Soo Yoon	21C-0274	4167
23413 7590 04/30/2009 CANTOR COLBURN, LLP 20 Church Street 22nd Floor Hartford, CT 06103				
EXAMINER DUONG, TAI V				
ART UNIT 2871		PAPER NUMBER		
NOTIFICATION DATE 04/30/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

Office Action Summary

Application No.

10/552,088

Applicant(s)

YOON ET AL.

Examiner

TAI DUONG

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S508)
- Paper No(s)/Mail Date 04/15/09.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application.
- 6) ☐ Other: _____.

The rejections over Fukuzawa et al in view of Jang et al and Moon in view of Jang et al are withdrawn in view of the amendments to claim 1 and Applicant's remarks.

Claims 11-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 07/03/2008.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al (US 2003/0011739) in view of Jang et al (US 2003/0112388) of record.

Yoshihara et al disclose in Figs. 5-8 and 9(a) a LCD apparatus comprising an LCD panel assembly 21 having a plurality of pixels controlling an arrangement of liquid crystal so as to display a color image; *a light supplying unit (6, 7) having independent light sources (red LED, green LED, blue LED) corresponding to red light, green light and blue light, respectively, the independent light sources successively supplying the red light during a time corresponding to a first one-third of a frame, a green light during a second one-third of the frame and the blue light during a third one-third of a frame, respectively (Fig. 9(a)); the pixels comprising a transparent electrode transmitting the red light, the green light; the blue light a red light supplying unit, a green light supplying unit and a blue light supplying unit each comprising a light emitting diode (LED); the red*

light supplying unit, the green light supplying unit and the blue light supplying unit being alternately disposed (paragraphs 0036-0049). Thus, the only differences between the LCD apparatus of Yoshihara et al and that of the instant claims are a light reflective-transmissive unit disposed between the light supplying unit and the LCD panel assembly so as to transmit the red light, the green light and the blue light and to reflect a light externally provided to the LCD panel assembly in order to improve luminance of the color image (claims 1-3, 5, 6 and 16), and the light reflective-transmissive unit comprising a light reflective-transmissive film including a plurality of first layers and a plurality of second layers, the first and second layers having different refractive indexes from each other, and the first and second layers being alternately stacked (claims 7 and 8). However, Jang et al disclose in Figs. 4 and 5 a light reflective-transmissive unit 160 disposed between the light supplying unit and the LCD panel assembly, the light reflective-transmissive unit being disposed at a position facing the light supplying unit of the LCD panel assembly; and the light reflective-transmissive unit 160 including a plurality of first layers and a plurality of second layers, the first and second layers having different refractive indexes from each other, and the first and second layers being alternately stacked (paragraphs 0044-0064). As shown in Fig. 4, the light externally provided to the LCD panel assembly is reflected (light ray 180) thereby improving luminance of the LCD panel assembly. Thus, it would have been obvious to a person of ordinary skill in the art to employ in the LCD apparatus of Yoshihara et al the above-mentioned light reflective-transmissive unit disposed between the light supplying unit

and the LCD panel assembly for enhancing the transmissivity and light efficiency of the LCD apparatus, as disclosed by Jang et al (abstract).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al and Jang et al as applied to claims 1-3 above, and further in view of Fukuzawa et al (US 6,249,328) of record.

The only difference between the LCD apparatus cited in the above rejection of claims 1-3 and that of the instant claim is each of the red light supplying unit, the green light supplying unit and the blue light supplying unit comprising a cold cathode fluorescent lamp (CCFL). However, Fukuzawa et al disclose that it was known to employ a light supplying unit comprising LEDs or CCFLs in a field sequential LCD apparatus (col. 1, line 51 – col. 2, line 8). Thus, it would have been obvious to a person of ordinary skill in the art in view of Fukuzawa et al to employ in the LCD apparatus cited in the above rejection of claims 1-3 light supplying units comprising CCFLs for obtaining a low cost LCD apparatus due to a low cost light supplying unit.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al and Jang et al as applied to claim 1 above, and further in view of Tsuda et al (US 7,106,400) of record.

The only difference between the LCD apparatus cited in the above rejection of claim 1 and that of the instant claim is the pixels comprising a transparent electrode transmitting the red light, the green light and the blue light; and a reflective electrode disposed on the transparent electrode, the reflective electrode having a contact hole through which a portion of the transparent electrode is exposed. However, Tsuda et al

disclose in Figs. 15 and 16 the pixels comprising a transparent electrode 37; and a reflective electrode 10 disposed on the transparent electrode, the reflective electrode having a contact hole (30, 31) through which a portion of the transparent electrode is exposed (col. 17, line 62 – col. 18, line 34). Thus, it would have been obvious to a person of ordinary skill in the art in view of Tsuda to employ in the LCD apparatus cited in the above rejection of claim 1 the pixels comprising a transparent electrode transmitting the red light, the green light and the blue light; and a reflective electrode disposed on the transparent electrode, the reflective electrode having a contact hole through which a portion of the transparent electrode is exposed for obtaining a LCD apparatus with small power consumption and high contrast, due to the transreflective type display.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al and Jang et al as applied to claim 1 above, and further in view of Moon (US 6,480,247) of record.

Yoshihara et al disclose in Fig. 6 a light guide plate 6 including a light-exiting surface facing the light supplying unit 7, a top light-exiting surface, a bottom light-exiting surface, a side surface connecting the top and bottom light-exiting surfaces, and wherein the light source is disposed on the side surface of the light guide plate. Thus, the only difference between the LCD apparatus cited in the above rejection of claim 1 and that of the instant claim is a light reflecting surface facing the bottom light-exiting surface of the light guide plate. However, Moon discloses in Fig. 8B that it was known to employ a light reflecting surface 65 facing the bottom light-exiting surface of the light

guide plate 64 (col. 4, lines 15-35). Thus, it would have been obvious to a person of ordinary skill in the art in view of Moon to employ in the LCD apparatus cited in the above rejection of claim 1 a light reflecting surface facing the bottom light-exiting surface of the light guide plate for efficiently reflecting the light from the light supplying units to the LCD panel assembly.

Applicant's arguments with respect to claims 1-10 and 16 have been considered but are moot in view of the new ground(s) of rejection.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication should be directed to Tai Duong at telephone number (571) 272-2291.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787.

/TD/

/Dung Nguyen/
Primary Examiner, Art Unit 2871